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chology to Anthropology," and Dr. Aikens on an "Analysis of Cause."

The meeting adjourned, to meet next December, at Columbia, N. Y. The officers of the association are: G. Stanley Hall, president; Professor Ladd of Yale University, vice-president; and Professor Jastrow of the University of Wisconsin, secretary.

ASSOCIATION OF AMERICAN ANATOMISTS.¹

The following persons were elected to membership:—Herbert S. Birkett, M.D., Montreal, Canada, Demonstrator of Surgery, McGill University; Tracy Earl Clark, B.S., Clinton Liberal Institute, Ft. Plain, N. Y.; J. Milton Greenman, Assistant Director Wistar Institute of Anatomy, University of Pennsylvania; James W. Hartigan, M.D., Morgantown, W. Va., Professor of Biology, University of West Virginia; Geo. S. Huntington, M.D., New York City, Professor of Anatomy, College of Physicians and Surgeons; Peter J. McCourt, M.D., New York City; Middleton Michel, M.D., Charleston, S. C., Professor of Physiology, Medical College of South Carolina; Wm. B. Scott, Princeton, N. J., Professor of Geology and Paleontology; Wm. Anderson, F.R.C.S., etc., London, England, Demonstrator of Anatomy, St. Thomas's Hospital College (honorary); C. S. Minot, S.D., Harvard Medical School, Professor of Histology and Embryology; C. A. Hamann, M.D., Assistant Demonstrator of Anatomy, University of Pennsylvania.

The executive committee, through the secretary, reported that the circular in regard to information concerning the Negro race was nearly ready.

The following papers were then read: 1. Crania of the Cetacea. 2. The human lower jaw, Dr. Harrison Allen, University of Pennsylvania. These two papers were illustrated by specimens and discussed by Professor Herrick and by Professor Geo. Macloskie of Princeton University. 3. History of the development of bone-tissue. Illustrated by microscopic slides. Dr. Carl Heitzmann, New York City. Discussed by Professors Macloskie and William Libbey, Jr., of Princeton University.

The following quotation is an extract from Dr. Allen's presidential address: "It is now four years since the Association of American Anatomists was founded, with a list of fifteen members. Many were the objections raised when it was proposed to organize a new society. Eminent professors declared that it was not needed; others, while sympathizing with its objects, were convinced that the list of members would be so small that it would be a difficult matter to fill the necessary offices. The fact that an active membership exists of ninety-four persons, representing twenty-two States, the District of Columbia and the United States army, sufficiently meets both the above-mentioned objections. It tells us unmistakably that the society is needed, and that not only are the offices filled, but that the association is recognized as a devoted band of students whose activity compares favorably with that of other scientific organizations.

"But the work thus far accomplished is but the harbinger of what it is hoped may be undertaken. An attempt at co-operation between the American Anatomists is to be brought before you at this meeting. The executive committee will present a plan by which observations on the anatomy of the Negro shall be entered upon. It is earnestly hoped that every teacher and demonstrator of anatomy in the country, whether a member of this society or not, will assist its committee in accumulating observations on this class of subjects."

4. An anomalous development of the human sternum. Specimen and remarks by Dr. D. S. Lamb, Army Medical Museum, Washington, D. C. Discussed by Dr. Dwight. 5. Discovery of an ossified thyroid cartilage and a supposed rudimentary clavicle in an Artiodactyl. Professor Wm. B. Scott, Princeton University. Specimen exhibited. Discussed by Professor Cope and Dr. Allen. 6. Observations on the *psoas parvus* and *pyramidalis*. A study of variations. Dr. Thomas Dwight, Harvard Medical School. 7. Significance of percentages in reversions in human anatomy.

¹ Fifth annual session, at Princeton, N. J., December 27, 1892. Dr. Harrison Allen, of Philadelphia, president; Dr. D. S. Lamb, U. S. A., secretary.

Professor H. F. Osborn, Columbia College, New York City. Discussed by Professor Cope and Drs. Dwight and Lamb.

3 P.M. session resumed. The following papers were read: 8. Histogenesis in the brain, and its bearings on development and decline. Professor C. L. Herrick, Dennison College, Granville, Ohio. Discussed by Drs. Heitzmann and Piersol. 9. The metapore or foramen of Magendie, with photographs. Professor B. G. Wilder, Cornell University. In the absence of Professor Wilder, the paper was read by Mr. Clark. Discussed by Professor Herrick. 10. Neuromerism and the cranial nerves of Ophidia. Professor Herrick. 11. The insula of the pig. With specimens. Discussed by Drs. Allen and Dwight. 12. Note on diagrams of the spinal cord. Dr. J. T. Duncan, Toronto, Canada. Read by the secretary, and referred to the Committee on Nomenclature. 13. Duration of motion of human spermatozoa. Professor Geo. Piersol, University of Pennsylvania. Discussed by Drs. Spitzka and Heitzmann.

Thursday, Dec. 29, 1892. The report of the Committee on Nomenclature, Dr. Wilder, secretary, was presented. The reading of the report was dispensed with, copies having been placed in the hands of the members present.

The following papers were read: 14. The innervation of the organ of Corti. Howard Ayers, Ph.D., Curator of the Lake Laboratory, Milwaukee, Wis. Microscopical slides with remarks. 15. The posterior surface of the liver, as described by Vesalius. Dr. F. H. Gerrish, Bowdoin College, Maine. Discussed by Drs. Dwight, Allen, and Heitzmann. 16. Embryos of bats. With specimen and plates. Dr. Allen. Discussed by Professors Cope and C. S. Minot. 17. Meckel's diverticulum. Dr. D. S. Lamb, Army Medical Museum, Washington. Discussed by Drs. Dwight and Minot. 18. Delimitation of abdominal regions. Dr. E. A. Balloch, Howard University, Washington. Read by the secretary. 19. The need of agreement in the limits of the abdominal regions. Dr. Gerrish. The last two papers were discussed together by Drs. Dwight, Piersol, Kemp, Heitzmann, and Lamb. It was decided that, with the consent of the authors, copies of these papers be sent to the committee on this subject appointed by the Anatomical Society of Great Britain and Ireland; and also to the committee of the German Anatomical Society. 20. Physical characteristics of the Kootenay Indians of South Eastern British Columbia. Professor Alex. F. Chamberlain, Clark University, Worcester, Mass. Read by title. 21. Series of thirty-five natural-size photographs of sections of human brain, with brief remarks. Dr. I. S. Haynes, University of New York.

NOTES ON THE OCCURRENCE OF RUBELLITE AND LEPIDOLITE IN SOUTHERN CALIFORNIA.

BY HAROLD W. FAIRBANKS, BERKELEY, CAL.

THE work of the California State Mining Bureau has recently brought into notice a very interesting association of minerals in San Diego County, California. The most important of these are lepidolite and rubellite. The former remarkable for the great quantity and purity in which it occurs, and the latter for its exquisitely radiated crystal aggregates. The ruby-tinted tourmaline imbedded in the pale lilac-colored mica presents a picture of beauty rarely equaled in the mineral kingdom. Before giving a detailed description of the occurrence of these minerals, a few words on the general geology of the district may not be out of place.

San Diego, the southern county of the State, is dominated by one main system of mountains known as the Peninsula Range. This consists of a confused mass of mountains and valleys rising gradually from the coast to the summit, forty miles inland, from which the descent is quite abrupt to the Colorado Desert. The average height of the watershed is about four thousand feet, but toward the northern boundary of the county, Mount San Jacinto reaches an altitude of about ten thousand feet. This Peninsula Range consists chiefly of granite which often takes on a dioritic facies. Dark basic diorite and rocks of the norite type occur as intrusions of considerable magnitude. Quartzite, mica schist, and thin bedded gneisses form long, nar-

row areas extending a little west of north and east of south. They represent extremely metamorphosed remnants of the original sedimentary formation.

Lying on the west of the summit of the range and extending parallel with it is a strip of granitic country filled with irregular dikes or veins of coarsely crystallized quartz, feldspar and muscovite; or frequently of feldspar and quartz only, in the latter case taking on a pegmatitic structure. Black tourmaline in irregular crystals is generally characteristic of these dikes.

The rubellite and lepidolite are found associated with an immense dike of this character near Pala, a short distance west of the foot of Smith's Mountain. The dike occurs in one of the norite bosses which forms a high hill over half a mile across. Similar bodies of pegmatitic rock are found in the granite in the vicinity but contain no rubellite. The outcrop is tracible along the eastern slope of the hill for nearly three thousand feet, in places forming a precipitous ledge. It gradually increases in width toward the southern end, where it is three hundred feet across.

It is near one edge of this great mass of pegmatite, and included in it, that the minerals in question occur.

The northern portion of the dike contains no tourmaline; the dominant character being that of a very coarse muscovite granite, with a sprinkling of minute garnets. Both large and small bodies of finely formed pegmatite lie apparently wholly isolated in the coarse granite.

As the dike is followed southward to a point about midway in its course, crystals of black tourmaline begin to appear in abundance. One crystal ten inches long appeared broken into a dozen pieces, which had been moved a slight distance apart but were perfectly angular. The quartz-feldspar matrix showed no signs of crushing, and it is difficult to understand how the appearance could have been produced unless the crystal existed prior to the consolidation of the yielding magma.

Parallelism of the smaller and more slender crystals is often to be observed as taking place about the larger ones. Green tourmaline is present in small amount. It does not generally show any crystalline form, but is disseminated in small granular particles irregularly or aggregated about the black tourmaline.

The lepidolite appears here first in small irregular patches. A few yards to the south it forms a well-defined vein, and is filled with minute needle-like crystals of rubellite. Quartz crystals with fairly well defined boundaries are scattered through it.

At the point where the lepidolite reaches its greatest width, about sixty feet, it contains very little rubellite and is quite massive and pure save for granular aggregates of an acid plagioclase feldspar, probably oligoclase. It is near the southern end of this great body of lithia mica that the rubellite appears in the large radiated aggregates. Fan-shaped clusters of rubellite also occur in the quartz and feldspar adjoining the lepidolite. Single crystals in these groups are often fifteen inches long and one-half inch in diameter. One cavity containing good quartz crystals has been found, and it is possible that with farther exploration gem tourmalines may be found. Many of the smaller crystals in the lepidolite are clear and of good color, but are full of checks.

The rubellite crystals are generally gathered in radial aggregates six inches to a foot in diameter, but sometimes occur singly. Single crystals appear with smaller ones branching from one end presenting a tree-like form, or two or more intersect each other so as to form a cross. The aggregates are sometimes slender, with a slightly wavy course. The crystals either branch outward without any order or they all incline one way, giving the appearance of a fern. In other specimens lines of crystallization radiate from a common centre; curved or club-shaped crystals branching from each line. Hematite is sometimes found coating the tourmaline crystals.

Nine minerals are thus found associated together here—quartz, feldspar, muscovite, garnet, hematite, oligoclase, green, red, and black tourmaline.

A somewhat similar occurrence of minerals is reported from the mountains of Lower California, but nothing is known about it.

The granitic portions of the Sierra Nevada and Peninsula

Ranges contain but few rare or beautiful minerals, and on that account the deposit at Pala is all the more remarkable.

LETTERS TO THE EDITOR.

*** Correspondents are requested to be as brief as possible. The writer's name is in all cases required as proof of good faith.*

On request in advance, one hundred copies of the number containing his communication will be furnished free to any correspondent.

The editor will be glad to publish any queries consonant with the character of the journal.

Snake Story.

APPROPOS of the interesting notes on snakes, lately published in your columns, I would like to relate the following:—

I think it was about the middle of last June that our little boy, who is interested in collecting various natural history objects, brought home a full-grown water-snake. He procured a box of generous dimensions, one whole side of which he covered with wire-screen, such as is used in windows. A small slide was made in the top of the box, so that the porcelain tray (such as photographers use for developing trays), which he placed within, could be kept filled with water, and also for the introduction of food.

This box was thenceforward "the snake den," and here the snake passed the remainder of its existence. A small frog, several grasshoppers, and various insects were dropped through the opening in the top of the box from time to time, but we are not sure whether the snake ever deigned to taste a morsel during her entire captivity; certain it is, however, that if she did finally taste the frog, she did not find it a very appetizing meal, for the little frog hopped about in the box for days and days without any food itself. It was just as apt to rest upon the body of the snake as anywhere else, each seemingly indifferent to the presence of the other. The grasshoppers also were entirely ignored. The snake was left in the box, in the back-yard, during the months of July and August, with no care whatever, we being absent during that time, and the little boy who had agreed to look after it having deserted it.

What was our surprise, after our return early in September, to find one day that Mrs. Snake had giving birth to thirteen little ones. Such a little, writhing, squirming, snaky mass! The little snakes were about five inches long, and soon became quite active. In the course of a few weeks they were much more ready to take their own part than their mother seemed to be. She had probably learned by experience that it was of little or no avail to "fight back," and contented herself with running out her forked tongue when irritated, and then trying to creep out of harm's way. The little ones, on the contrary, would crawl up the screen as far as possible, and when pushed off, with a straw or wire introduced through the screen, they would at once crawl up again, run out their little tongues, and show all the rashness of youth.

Wondering how far the maternal instincts were developed in the mother snake, whether she would try to defend or protect them, the young snakes were frequently irritated, in order to arouse, if possible, her defensive propensities; it was all to no purpose; she seemed a heartless mother, ignoring wholly that her offspring were in danger. A long wire was often thrust into the box, and under a little snake, which could thus be dangled before the old snake in a most irritating manner. But, whether from fear on her own part, or utter indifference to the welfare of her young, she paid no attention whatever to the provocation.

The mother snake lived until the middle of October, when she succumbed to the white frosts of autumn.

A few weeks later two of the young snakes fell asleep; one of them was given to a little schoolmate, who put it in his pocket and took it to school, when, lo! and behold! the warmth from his body resuscitated it, and the "bad boy" played with it in school. To the teacher's question as to what he had, he replied, "A shoestring!"

Learning thus that possibly the remaining little snakes might sleep (hibernate) through the winter, soil, small stones, dead leaves, etc., were placed in the box, and they crept away out of sight. Whether they are dead, or only sleeping, we do not know. They